REMARKS

In the Office Action dated November 15, 2007, the Examiner rejected claims 1-4, 10, 21 and 22 under 35 USC 103(a) as being unpatentable over Zaydel in view of FIG. 1 of applicant's specification. Claims 1-4, 21, 22, 25-29 and 31-34 were rejected under 35 USC 103(a) as being unpatentable over prior art FIG. 1 of applicant's specification in view of Zaydel.

Claims 1-8, 10 and 21-34 were rejected under 103(a) as being unpatentable over Kask in view of prior art FIG. 1 of applicant's specification and Zaydel.

Applicant acknowledges that FIGS. 1-3 represent the state of the art in tube plugs. Tube plugs are used to seal normally open tubes with a removable plug that fits into the end of the tube with sufficient frictional force to prevent the plug from being forced out of the tube under normal operating pressures within the tube. As described in the specification, in order to insert the tubes into the plug, a tool in the form of a blunt end screw driver is used to press the plug into the tube by being inserted into a blind hole in the plug which elongates the plug and reduces its diameter, permitting the plug to be easily inserted into the end of the tube. When the tool is released, the plug contracts axially and expands radially, thereby providing a liquid tight seal between the plug and the tube.

Applicant has found that on occasion, the insertion of the plug with the use of the tool may result in a rupture of the plug, thus providing a liquid leakage path through the wall of the plug from the interior of the tube to the interior of the blind hole. To address this problem, applicant conceived of providing an insert to be placed into the blind hole, after the plug has been inserted into the tube, which insert will be retained in the blind hole by sufficient frictional force, and will also provide a liquid seal along the length of the insert so that the blind hole will be sealed between the inserted end and the open end of the blind hole. The insert is provided with an outer surface which engages the inner surface of the blind hole in a liquid tight manner via annular ribs which comprise reverse taper serrations. The reverse taper serrations allow for a relatively easy insertion of the insert into the blind hole, however, require substantially greater force to effect removal of the insert from the blind hole. The insert is provided with an enlarged head portion to prevent the insert from being over inserted into the blind hole and also includes a surface configuration, such as a hole extending perpendicular to an axis of the insert, to accept a removal tool to permit removal of the insert

from the tube plug. The introduction of the insert member into the tube plug body will also have the advantage of diametrically enlarging the tube plug body along substantially a full length of the insert. This will provide an even tighter seal between the tube plug and the tube.

As mentioned above, FIGS. 1-3 of the present application illustrate a state of the art tube plug which has no insert and which has no means for preventing leakage if the wall of the tube plug is breached during insertion.

The Examiner turns to one or two earlier patents in an attempt to render Applicant's invention obvious. The first patent is to Zaydel which discloses a fastening assembly for automobile tail light components which permits the use of a double stud retainer to hold a quarter panel extension onto a thin sheet metal wall of the rear quarter panel of an automobile. The double stud has a central flange 14 with a threaded shank portion 11 extending in one direction from the flange and a ridged shank 12 extending in an opposite axial direction from the flange. A stud retainer 20 is inserted into a hole in the thin sheet metal wall of the automobile. Thereafter, the ridged shank 12 is inserted into the stud retainer, at least partially, while the vehicle body is painted and conveyed through a paint oven. As stated, after the vehicle body has gone through the paint oven, the fastening assembly is completed by applying a nut 40 onto the stud retainer. First, however, the quarter panel extension 4 is moved in a direction to the left (FIG. 2) forcing the shank 12 fully into the socket cavity 27 of the stud retainer. It is stated that this will cause the stud retainer to move fully into engagement with the quarter panel such that the flange 24 of the stud retainer will abut against the thin panel wall. Thus, even with the shank 12 inserted into the stud retainer 20, the stud retainer 20 is axially movable relative to the opening in the thin sheet metal wall of the quarter panel. The nut 40 can then be threaded onto the stud retainer and is sized such that the threading will roll form mating external threads onto the stud retainer and will force the plastic material of the stud retainer to flow radially inward into the annular grooves on the shank of the stud to prevent axial movement of the stud relative to the stud retainer. Thus, Zaydel specifically teaches that in order to retain the stud retainer on the automobile body, it is necessary to thread a nut onto the exterior surface of the stud retainer so that the thin sheet metal wall of the automobile body is sandwiched between the nut and the bearing flange 24 of the stud retainer.

Zaydel inserts the stud retainer into a hollow cavity area, such as the trunk, of the automobile and is not concerned with whether there is any liquid leakage through the stud retainer since the stud retainer is placed into a location which is not filled with liquid. Zaydel

does not specify whether the ribs of the insert member provide a liquid seal between the insert member and the stud retainer member and thus would not provide a suggestion to a person of ordinary skill in the art that the structure of Zaydel would result in a useful solution to the problem being addressed by applicant. Since Zaydel specifically teaches to provide axial grooves in the stud retainer, which axial grooves would provide a liquid flow path axially between the stud retainer and the stud shank, the disclosure of Zaydel would not teach to a person of ordinary skill in the art that the shank of Zaydel would provide the liquid tight seal required and achieved by applicant. Without an assurance of achieving such a liquid tight seal, a person of ordinary skill in the art would have no reason or motivation to select and modify the structure of Zaydel in the manner as set forth in the claims of the present application.

Further, Zaydel does not teach or suggest any type of surface configuration for the insert to be utilized by a tool for removal of the insert from the stud retainer as required by the independent claims. For these various reasons, applicant respectfully submits that a combination of Zaydel and the tube plugs shown in FIGS. 1-3 of the present application would not render any of the independent claims of the present application as being obvious.

The patent to Kask discloses a closure plug for a hole in a thin wall, such as a sheet metal wall, of a container which may hold a fluid. The closure plug is comprised of two components, a cup shaped element which is inserted through an opening in the thin wall and a rigid insert that is inserted into the cup after the cup has been inserted into the opening in the wall. The insert has a relatively smooth cylindrical length which is received in the cup shaped element and, due to the internal configuration of a cup shaped element, causes the cup shaped element to bulge outwardly to clamp the thin wall between an external shoulder 20 of the cup and a bulged out sidewall 22a. The insert also has a neck portion which receives a contoured shoulder formed in the cup member.

The disclosure of Kask describes the liquid tight seal that this assembly provides at the junction between the vessel wall 10 and the cup element 14, however, there is no discussion concerning the liquid tight effectiveness between the cup element and the insert. In fact, since the insert is smooth along its length, there is no assurance that the interface between the insert member and the cup shaped element is liquid tight. The insert member of Kask is used merely to provide assurance of a liquid tight seal between the cup shaped element and the vessel, and is not provided with, and does not teach to provide, a liquid tight seal in the cavity portion of the cup shaped element.

Therefore, a person of ordinary skill in the art would have no motivation for utilizing the structure disclosed by Kask to provide a liquid tight seal in the hollow central portion of the cup shaped element. Applicant's invention, as set forth in the independent claims provides the unexpected result of rendering the blind hole liquid tight through the use of the ribbed insert. This surprising result is not taught or suggested by any of the references relied on by the Examiner.

In view of the above described distinctions of the present invention over the art cited by the Examiner, applicant respectfully submits that each of the independent claims, along with their dependent claims, are patentably distinguishable over the references cited by the Examiner.

In view of the foregoing, applicant respectfully submits that all of the claims of the application are patentably distinguishable over the references relied on by the Examiner and applicant respectfully requests the Examiner to indicate all claims as allowed and to pass the application to issue.

Respectfully submitted,

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